

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Translation

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| Applicant's or agent's file reference FP00-0235-00 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/JP00/07954 | International filing date (day/month/year) 10 November 2000 (10.11.00) | Priority date (day/month/year) 10 November 1999 (10.11.99) |
| International Patent Classification (IPC) or national classification and IPC G02B 13/00, 3/00, 3/06 | | |
| Applicant HAMAMATSU PHOTONICS K.K. | | |

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| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>4</u> sheets.</p> | |
| <p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p> | |

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| Date of submission of the demand 10 November 2000 (10.11.00) | Date of completion of this report 28 August 2001 (28.08.2001) |
| Name and mailing address of the IPEA/JP | Authorized officer |
| Facsimile No. | Telephone No. |

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed☒ the description:

pages _____ 1,4-11 _____, as originally filed

pages _____, filed with the demand

pages _____ 2-3 _____, filed with the letter of _____ 13 April 2001 (13.04.2001)

☒ the claims:

pages _____, as originally filed

pages _____, as amended (together with any statement under Article 19

pages _____, filed with the demand

pages _____ 1-8 _____, filed with the letter of _____ 13 April 2001 (13.04.2001)

☒ the drawings:

pages _____ 1/8-8/8 _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☐ The amendments have resulted in the cancellation of:☐ the description, pages _____☐ the claims, Nos. _____☐ the drawings, sheets/fig _____5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

| | | | |
|-------------------------------|--------|-----|-----|
| Novelty (N) | Claims | 1-8 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-8 | NO |
| Industrial applicability (IA) | Claims | 1-8 | YES |
| | Claims | | NO |

2. Citations and explanations

Document 1: JP, 58-168026, A (Agency of Industrial Science and Technology), 4 October 1983 (04.10.83), entire text, all drawings (Family: none)

Document 2: JP, 57-181516, A (Agency of Industrial Science and Technology), 9 November 1982 (09.11.82), entire text, all drawings (Family: none)

Document 3: US, 5004328, A (Canon Inc.), 2 April 1991 (02.04.91), entire text, all drawings, & JP, 63-96618, A, entire text, all drawings, & JP, 63-81413, A, entire text, all drawings

Document 4: EP, 317153, A1 (British Telecommunications PLC), 24 May 1989 (24.05.89), entire text, all drawings, & JP, 2-502584, A, entire text, all drawings, & WO, 89/04979, A, & AU, 8827256, A

Document 5: JP, 4-284401, A (Fujitsu Ltd.), 9 October 1992 (09.10.92), entire text, all drawings (Family: none)

Document 6: JP, 9-96760, A (Mitsui Petrochemical Industrial Products, Ltd.), 8 April 1997 (08.04.97), entire text, all drawings (Family: none)

Claim 1

The constitution of an optical lens, described in Claim 1 as a lens comprising a first optical member having a lens action and a second optical member in which the aforementioned first optical member is embedded and having a lens action, is common knowledge in the art, as disclosed in Document 1 to Document 3.

Meanwhile, an optical member wherein a plurality of acting parts, which have a lens action in the direction of an X-axis perpendicular to a Z-axis when the aforementioned Z-axis is designated as the axis in the direction of a light beam, are arranged on an array, is common knowledge in the art as a compound lens member, as disclosed, for example, in Document 4 to Document 6. Moreover, Document 4 and Document 5 disclose a feature wherein optical members are piled to form a plurality of layers in the direction of the Y-axis. Therefore, a person skilled in the art could easily conceive of adopting a lens constitution having an embedded form such as that disclosed in the aforementioned Document 1 to Document 3 as a specific form for an optical member wherein a plurality of acting parts, which have a lens action in the direction of the X-axis, are arranged on an array, and piled to form a plurality of layers in the direction of the Y-axis, which as mentioned above are common knowledge in the art, in order to achieve an optical lens such as that described in Claim 1.

Furthermore, Claim 1 specifically describes an optical lens characterized in that, after acting on respective light beams emitted from a semiconductor laser element having a plurality of light-emitting parts arranged in an array, the lens emits the light beams. However, this specified feature is not a characterizing feature, such as constitution or shape, of the invention of an optical lens product, and thus, it is not a special

technical feature of the invention of an optical lens product.

Claim 2

Claim 2 specifies that both ends of each pillar-shaped optical member protrude from the second optical member, and the exposed surfaces of each pillar-shaped optical member come into contact with one another, but this is merely a design feature.

Claims 3 and 4

Claims 3 and 4 specify the relationships between the coefficients of thermal expansion and melting points of a first translucent material, which comprises a first optical member, and a second translucent material, which comprises a second optical member. However, these specified features, from the description in the description, are exclusively characteristics grounded in the manufacturing method, and are not characterizing features, such as constitution, shape, or properties, of the invention of an optical lens product, and thus, they are not special technical features of the invention of an optical lens product.

Claims 5 and 6

Decisions as to what concrete form the optical acting parts of the second optical member should take are merely features fittingly determined by a person skilled in the art.

Claim 7

Claim 7 specifies manufacture using a wire drawing method. However, this specified feature is not a characterizing feature, such as constitution or shape, of the invention of an optical lens product, and thus, is not

a special technical feature.

Claim 8

Claim 8 describes an invention of an optical system provided with a semiconductor laser element, an optical lens, and a light-receiving device. However, an optical system provided with a semiconductor laser element, an optical lens, and a light-receiving device is common knowledge in the art, and is not a special technical feature. See Document 5 and Document 6 for examples of an optical system provided with a semiconductor laser element, an optical lens, and a light-receiving device.